IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Young-Ky KIM et al.	Examiner: Steven LIM	
Serial No.:	10/726,087	Group Art Unit: 2617	
Filed:	December 2, 2003	Docket:678-245 CON (P8696-US-CON)	
		Dated: **November 9, 2009**	

For: **DEVICE AND METHOD FOR EXCHANGING FRAME MESSAGES OF DIFFERENT LENGTHS IN CDMA COMMUNICATION SYSTEM**

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

TRANSMITTAL OF APPELLANTS' BRIEF ON APPEAL

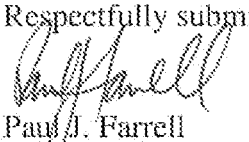
Sir:

Enclosed please find APPELLANTS' BRIEF.

Also enclosed is a credit card payment in the amount of $540.00 to cover the appeal fee.

If the enclosed credit card payment is insufficient for any reason or becomes detached, please charge the required fee under 37 C.F.R. §1.17 to Deposit Account No. 50-4053. Also, in the event any additional extensions of time are required, please treat this paper as a petition to extend the time as required and charge Deposit Account No. 50-4053.

Respectfully submitted,



Paul J. Farrell
Reg. No.: 33,494
Attorney for Applicant(s)

THE FARRELL LAW FIRM
290 Broadhollow Road, Suite 210 E
Melville, New York 11747
516-228-3565

Attorney Docket 678-245 CON (P8696)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPLICANT(S): KIM, Young-Ky, et al.

GROUP ART UNIT: 2617

APPLICATION NO.: 10/726,087

EXAMINER: LIM, Steven

FILING DATE: December 2, 2003

DATED: November 9, 2009

FOR: DEVICE AND METHOD FOR EXCHANGING FRAME MESSAGES OF DIFFERENT LENGTHS IN CDMA COMMUNICATION SYSTEM

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANTS' BRIEF ON APPEAL

REAL PARTY IN INTEREST

The real party in interest is Samsung Electronics Co, Ltd, the assignee of the subject application, having an office at 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea.

RELATED APPEALS AND INTERFERENCES

To the best of Appellants' knowledge and belief, there are no other currently pending related appeals, interferences or judicial proceedings.

STATUS OF CLAIMS

This application is a continuation of US Application Serial No. 09/268,242, now U.S. Patent No. 6,768,728. Original Claims 1-30 were filed on December 2, 2003. Claim 24 was amended in an Amendment filed August 15, 2008. Claims 24-27 were cancelled in an Amendment filed August 5, 2009.[1] Thus, Claims 1-23 and 28-30 are pending in the Appeal. Claims 1 and 11 are in independent form.

Claims 9, 17-19, 22 and 30 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.[2]

For the purposes of this Appeal, Claims 1-8, 10-16, 20, 21, 23, 28 and 29 stand or fall together.

[1] The amendments after final were entered as evidenced by its noted entry in the Advisory Action dated August 14, 2009.

[2] In the Advisory Action dated June 19, 2008, the status of Claims 9, 17-19, 22 and 30 was mistakenly listed as "rejected" rather than as "objected to". Appellants respectfully make note of this oversight.

STATUS OF AMENDMENTS

Thus, the Appendix to this Appeal Brief includes Claims 1-30 of which the status of Claims 1-23 and 28-30 is indicated as "Original", and the status of Claims 24-27 is indicated as "Cancelled".

SUMMARY OF CLAIMED SUBJECT MATTER

The invention as recited in Claim 1 relates to a transmission device for a wireless communication system. The device includes a first message generator for encoding first input data of a first bit stream to generate a first frame message having a first frame length (Specification at page 16, lines 18-20, FIG. 5)[3]. The device also includes a second message generator for encoding second input data of a second bit stream longer than the first bit stream to generate a second frame message having a second frame length longer than the first frame length. (Specification at page 17, lines 8-10, FIG. 5). The device further includes a multiplexer for replacing a portion of the second frame message with the first frame message. (Specification at page 17, lines 11-18, FIG. 5). The device still further includes a spreader for spreading an output of the multiplexer. (Specification at page 18, lines 18-21, FIG. 5).

The invention as recited in Claim 11 relates to a data transmission method in a wireless communication system. The method includes encoding first input data of a first bit stream to generate a first frame message having a first frame length. (Specification at page 9, lines 22-31, page 15, lines 13-30, FIGs. 8A and 8B). The method also includes encoding second input data of a second bit stream longer than said first bit stream to generate a second frame message having a second frame length longer than said first frame length. (Specification at page 15, lines 13-30). The method further includes replacing a portion of the second frame message with the first frame message. (Specification at page 9, lines 25-30). The method still further includes transmitting the first frame message in place of the replaced portion of the second frame message. (Specification at page 10, lines 1-6).

[3] Although a citation for each feature of the claims is provided herein, Appellants do not concede the fact that support may be found elsewhere in the written description.

GROUNDS FOR REJECTION TO BE REVIEWED ON APPEAL

Whether Claims 1-8, 10-16, 20, 21, 23, 28 and 29 are unpatentable under 35 U.S.C. §103(a) as obvious over U.S. Patent 5,909,434 to Odenwalder (Odenwalder) in view of in view of U.S. Patent 5,691,995 to Ikeda et al. (Ikeda).

ARGUMENT

1. Independent Claim 1 is patentable over Odenwalder and Ikeda

Independent Claim 1 was said to be rendered obvious by Odenwalder and Ikeda.[4]

The invention as recited in Claim 1 relates to a transmission device for a wireless communication system. The device includes a first message generator for encoding first input data of a first bit stream to generate a first frame message having a first frame length. The device also includes a second message generator for encoding second input data of a second bit stream longer than the first bit stream to generate a second frame message having a second frame length longer than the first frame length. The device further includes a multiplexer for replacing a portion of the second frame message with the first frame message. The device still further includes a spreader for spreading an output of the multiplexer.

Odenwalder discloses bright and burst mode signaling data transmission in an adjustable rate wireless communication system.[5]

Ikeda discloses transmission of data by using convolutional coding of different code rates and encoded data reception including decoding of the received data.[6]

1A. The combination of Odenwalder and Ikeda does not teach or disclose generating a first frame message from first input data and generating a second frame message from second input data, and

[4] See Office Action dated June 5, 2009, at page 2.

[5] See Odenwalder, at title and abstract.

[6] See Ikeda, at title and abstract.

therefore Odenwalder in view of Ikeda cannot render Claim 1 unpatentable

The present invention relates to an apparatus and method to transmit/receive messages having different frame lengths. Particularly, when a shorter frame message (a first frame message) is generated during the transmission of a longer frame message (a second frame message), the transmission of the longer frame message is interrupted, whereupon the shorter frame message is immediately transmitted.

Claim 1 recites, in part, generating a first frame message from first input data and generating a second frame message from second input data. Two distinct frame messages are generated from two distinct input data. By definition "a first frame message" generated from first input data is different from "a second frame message" generated from second input data; any contrary position that holds that "a first frame message" is not distinct from "a second frame message" would amount to a misunderstanding of claim interpretation. FIG. 5 of the present application illustrates two frame generators 550 and 560 generating two frames, one frame from first input data and a second frame from second input data.

Although the Examiner contends that the claims do not recite two distinct frame messages, and therefore gave no weight to these arguments previously presented in prior filed Responses,[7] the Examiner goes on to reject these features and relies on Odenwalder as allegedly disclosing these features.[8]

In its description of its frame generator, Odenwalder states that its frame generator generates a

[7] See Office Action dated June 5, 2009 at pages 11-12.

[8] See Office Action dated June 5, 2009 at pages 2-3.

frame from both the signal data and user data.[9] As illustrated in FIG. 2, the single frame generator 30 of Odenwalder receives signaling data and user data and generates a single frame message. Odenwalder generates one frame.

The generation of one frame is not and cannot be equated with the generation of two distinct frame messages. Ikeda does not cure these defects of Odenwalder.

Accordingly, Odenwalder does not teach or suggest generating a first frame message from first input data and generating a second frame message from second input data, as recited by Claim 1. Ikeda does not cure the deficiencies of Odenwalder.

Since the combination of Odenwalder and Ikeda does not teach or disclose the recitation of Claim 1 of the present application, of generating a first frame message and generating a second frame message, Claim 1 cannot be rendered obvious over Odenwalder in view of Ikeda.

Based on at least the foregoing it is respectfully submitted that the rejection of Claim 1 under 35 U.S.C. §103(a) must be reversed.

1B. The combination of Odenwalder and Ikeda does not teach or disclose generating from first input data a first frame message having a first frame length and generating from second input data a second frame message having a second frame length longer than the first frame length, and therefore Odenwalder in view of Ikeda cannot render Claim 1 unpatentable

Claim 1 recites a first message generator for encoding first input data to generate a first frame message having a first frame length and a second message generator for encoding second input data to generate a second frame message having a second frame length longer than the first frame length.

[9] See Odenwalder at col. 3, lines 19-30.

The rejection relies on Odenwalder for allegedly disclosing this feature.[10]

Claim 1 of the present application recites an apparatus to transmit messages having different frame lengths, upon generating a first frame message and a second frame message of different lengths. In Claim 1, two distinct frames are generated, a first frame from first input data and a second frame from second input data, and the length of the second frame is longer than the length of the first frame.

Odenwalder is directed to controlling symbol repetition rate and puncturing rate, generating and transmitting a single 20 ms frame.

On the contrary, Claim 1 of the present application provides that while a message including frames having a general length, i.e., second frame length (20 ms), is transmitted, if a transmission of a message including frames having a length (5 ms), which is shorter than the general length, is requested, the message including frames having a general length and the message including frames having the short length are transmitted. That is, a message that includes frames having different lengths from each other is transmitted.

Accordingly, Odenwalder does not teach or suggest generating a first frame message having a first frame length and a second message generator to generate a second frame message having a second frame length longer than the first frame length, as recited by Claim 1. Ikeda does not cure the deficiencies of Odenwalder.

Since the combination of Odenwalder and Ikeda does not teach or disclose the recitation of Claim 1 of the present application, of a first message generator for encoding first input data to generate a first frame message having a first frame length and a second message generator for encoding second input data to generate a second frame message having a second frame length longer

[10] See Office Action dated June 5, 2009 at pages 2-3.

than the first frame length, Claim 1 cannot be rendered obvious over Odenwalder in view of Ikeda.

Based on at least the foregoing it is respectfully submitted that the rejection of Claim 1 under 35 U.S.C. §103(a) must be reversed.

1C. The combination of Odenwalder and Ikeda does not teach or disclose replacing a portion of the second frame message with the first frame message, and therefore Odenwalder in view of Ikeda cannot render Claim 1 unpatentable

Claim 1 recites, in part, replacing a portion of the second frame message with the first frame message, that is, the replacement of part of one distinct frame message with another frame message, i.e. the replacement of part of one distinct frame message with another frame message.

The rejection relies on Odenwalder and Ikeda as allegedly disclosing these features.[11]

The Examiner relies on Claim 4 of Odenwalder and col. 5, lines 25-50 of Ikeda as allegedly disclosing the features of Claim 1.

Claim 4 of Odenwalder recites, in relevant part, "puncturing said data by a puncture amount P_R such that a predetermined amount of said data is remaining, thereby generating punctured data…wherein said signaling data is added in an amount equal to said predetermined amount". The amount of signaling data is equal to the amount of remaining data. In col. 6, lines 45-50, Odenwalder explains this process of Claim 4, by stating:

> When signaling data is present, the rate is increased to a signaling data rate S_R of 25.6 bits per second with the symbol repetition rate remaining at one, but the bits punctured to total bit ratio P_R is increased to 5 of 17. Thus, user data may continue to

be transmitted at the user data rate U_R while signaling data is also transmitted.

Odenwalder punctures for rate matching purposes only. The signaling data in Odenwalder is not inserted in the punctured positions of the data. As a matter of fact, the signaling data is equal to the remaining data (see Claim 4), and not the amount of data punctured. Ikeda does not cure the defects of Odenwalder.

Ikeda merely discloses a generic multiplexing process. Ikeda states:[12]

> The convolution coding circuits 3a and 3b convolutionally code the outputs of the interleave circuits 2a and 2b at a prescribed code rate, for example, 1/2 etc., and provide this to the multiplexor 5 and the puncture code processor 4 respectively. The puncture code processor 4 carries out the process known as puncturing for thinning out data of the code data convolutionally coded at a prescribed code rate (for example, 1/2 etc.) outputted from the convolution coding circuit 3b. The puncture code rate is set higher than the source code rate (for example, a code rate of 1/2 is made to be 3/4 etc.) and an output is sent to the multiplexor 5.
>
> The multiplexor 5 multiplexes the convolutional code data provided from the convolution coding circuit 3a using, for example, time divided multiplexing, for the convolutional code data, coming from the convolution coding circuits 3a and 3b via the puncture code processor 4, and outputs this to the S/P circuit 6.

The multiplexor of Ikeda receives a stream of punctured data and a stream of non-punctured data.[13]

---

[11] See Office Action dated June 5, 2009 at page 3.

[12] See Ikeda at col. 5, lines 35-50.

[13] See Ikeda at FIG. 2 and col. 5, lines 35-45.

Again, the puncturing is performed for rate matching purposes. The data is not punctured so that other data can be inserted into the punctured positions. The multiplexor of Ikeda performs standard time division multiplexing.[14] Replacing data in a frame means that the some of the original data is no longer being included in the frame and that the place where the original data used to be is not occupied by other data. Ikeda does not teach or disclose replacing a portion of the second frame message with the first frame message as recited in Claim 1. Odenwalder does not cure these defects of Ikeda.

The combination of Odenwalder and Ikeda still results in only one frame that may be multiplexed, which is not and cannot be equated with generating a first frame message and generating a second frame message and replacing a portion of the second frame message with the first frame message as recited in Claim 1.

Since the combination of Odenwalder and Ikeda does not teach or disclose the recitation of Claim 1 of the present application, of replacing a portion of the second frame message with the first frame message, Claim 1 cannot be rendered obvious over Odenwalder in view of Ikeda.

Based on at least the foregoing it is respectfully submitted that the rejection of Claim 1 under 35 U.S.C. §103(a) must be reversed.

1D. Independent Claim 1 is not rendered obvious by Odenwalder in view of Ikeda

The Examiner has failed to show that each and every element of Claim 1, and in as complete detail as is contained therein, are taught in or suggested by the prior art. The Examiner has failed to make out a prima facie case for an obviousness rejection, and thus Claim 1 is allowable.

[14] See Ikeda at col. 5, lines 46-48.

1E. Dependent Claims 2-8, 10 and 28 are patentable over Odenwalder in view of Ikeda

Without conceding the patentability per se of dependent Claims 2-8, 10 and 28, these claims are likewise believed to be allowable by virtue of at least their dependence on Claim 1.

2. Independent Claim 11 is patentable over Odenwalder in view of Ikeda

Independent Claim 11 was said to be rendered obvious by Odenwalder and Ikeda.[15]

The invention as recited in Claim 11 relates to a data transmission method in a wireless communication system. The method includes encoding first input data of a first bit stream to generate a first frame message having a first frame length. The method also includes encoding second input data of a second bit stream longer than said first bit stream to generate a second frame message having a second frame length longer than said first frame length. The method further includes replacing a portion of the second frame message with the first frame message. The method still further includes transmitting the first frame message in place of the replaced portion of the second frame message.

Odenwalder discloses bright and burst mode signaling data transmission in an adjustable rate wireless communication system.[16]

Ikeda discloses transmission of data by using convolutional coding of different code rates and encoded data reception including decoding of the received data.[17]

---

[15] See Office Action dated June 5, 2009, at page 2.

[16] See Odenwalder, at title and abstract.

[17] See Ikeda, at title and abstract.

2A. Independent Claim 11 is not rendered obvious by Odenwalder in view of Ikeda

Independent Claim 11 was said to be rendered obvious by Odenwalder in view of Ikeda.[18] Claim 11 recites similar features as Claim 1. For at least the reasons set forth above, Claim 11 is patentable over Odenwalder in view of Ikeda.

The Examiner has failed to show that each and every element of Claim 11, and in as complete detail as is contained therein, are taught in or suggested by the prior art. The Examiner has failed to make out a prima facie case for an obviousness rejection, and thus Claim 11 is allowable.

2B. Dependent Claims 12-16, 20, 21, 23 and 29 are patentable over Odenwalder in view of Ikeda

Without conceding the patentability per se of dependent Claims 12-16, 20, 21, 23 and 29, these claims are likewise believed to be allowable by virtue of at least their dependence on Claim 11.

[18] See Office Action dated June 5, 2009 at pages 6-7.

CONCLUSION

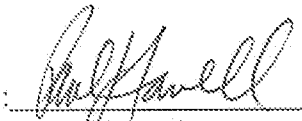
As the Examiner has failed to make out a prima facie case for an obviousness rejection, the rejection of Claims 1-8, 10-16, 20, 21, 23, 28 and 29 must be reversed.

It is well settled that in order for a rejection under 35 U.S.C. §103(a) to be appropriate, the claimed invention must be shown to be obvious in view of the prior art as a whole. A claim may be found to be obvious if it is first shown that all of the recitations of a claim are taught in the prior art or are suggested by the prior art. In re Royka, 490 F.2d 981, 985, 180 U.S.P.Q. 580, 583 (C.C.P.A. 1974), cited in M.P.E.P. §2143.03.

The Examiner has failed to show that all of the recitations of Claims 1-8, 10-16, 20, 21, 23, 28 and 29 are taught or suggested by Odenwalder in view of Ikeda. Accordingly, the Examiner has failed to make out a prima facie case for an obviousness rejection.

Independent Claims 1 and 11 are not rendered unpatentable by Odenwalder in view of Ikeda. Therefore, the rejections of Claims 1-8, 10-16, 20, 21, 23, 28 and 29 must be reversed.

Dated: November 9, 2009

By: 

Paul J. Farrell
Reg. No.: 33,494
Attorney for Appellants

THE FARRELL LAW FIRM, L.L.P.
290 Broadhollow Road, Suite 210E
Melville, New York 11747
(516) 228-3565 (tel)
(516) 228-8475 (fax)

CLAIMS APPENDIX

1. (Original) A transmission device for a wireless communication system, comprising:

a first message generator for encoding first input data of a first bit stream to generate a first frame message having a first frame length;

a second message generator for encoding second input data of a second bit stream longer than the first bit stream to generate a second frame message having a second frame length longer than the first frame length;

a multiplexer for replacing a portion of the second frame message with the first frame message; and

a spreader for spreading an output of the multiplexer.

2. (Original) The transmission device as claimed in claim 1, wherein the first frame message and the second frame message are multiplexed when the first frame message is generated during transmission of the second frame message.

3. (Original) The transmission device as claimed in claim 1, wherein the multiplexer intermixingly outputs, in sequence, a portion of the second frame message, the replaced first frame message and a remaining portion of the second frame message.

4. (Original) The transmission device as claimed in claim 1, wherein the multiplexer intermixingly outputs, in sequence, the replaced first frame message and the second frame message

from which a portion corresponding to the first frame message is deleted.

5. (Original) The transmission device as claimed in claim 3, further comprising a power controller for increasing a transmission power of the remaining portion of the second frame message, following the replaced first frame message, to be higher than that of the first frame message.

6. (Original) The transmission device as claimed in claim 1, wherein the first frame message has a frame length of 5ms and the second frame message has a frame length of 20ms.

7. (Original) The transmission device as claimed in claim 1, wherein the second frame message generator comprises:

a cyclic redundancy check (CRC) generator for generating CRC bits according to the second input data of the second frame length;

a tail bit generator for generating tail bits and adding the generated tail bits to an output of the CRC generator;

a channel encoder for encoding the tail bit-added second frame data at a predefined coding rate; and

an interleaver for interleaving the encoded frame message by the second frame length.

8. (Original) The transmission device as claimed in claim 7, wherein the interleaver uniformly distribute symbols generated by encoding one data bit over the respective durations of the whole frame.

9. (Original) The transmission device as claimed in claim 8, wherein the interleaver is designed according to a delete matrix given by

$$D_1 = \begin{bmatrix} 01110111*** \\ 10111011*** \\ 11011101*** \end{bmatrix}$$

10. (Original) The transmission device as claimed in claim 1, wherein the spreader comprises:

an orthogonal code spreader for spreading the frame message output from the multiplexer with an orthogonal code for a dedicated control channel; and

a pseudo-random noise (PN) spreader for spreading an output of the orthogonal code spreader with a PN sequence.

11. (Original) A data transmission method in a wireless communication system, comprising the steps of:

encoding first input data of a first bit stream to generate a first frame message having a first frame length;

encoding second input data of a second bit stream longer than said first bit stream to generate a second frame message having a second frame length longer than said first frame length;

replacing a portion of the second frame message with the first frame message; and

transmitting the first frame message in place of the replaced portion of the second frame

message.

12. (Original) The data transmission method as claimed in claim 11, wherein the first frame message and the second frame message are multiplexed when the first frame message is generated during transmission of the second frame message.

13. (Original) The data transmission method as claimed in claim 11, wherein a portion of the second frame message, the first frame message and a remaining portion of the second frame message are intermixingly output in sequence, in said replacing step.

14. (Original) The data transmission method as claimed in claim 11, wherein the first frame message and the second frame message from which a portion corresponding to the first frame message is deleted, are intermixingly output in sequence, in said replacing step.

15. (Original) The data transmission method as claimed in claim 13, further comprising the step of increasing a transmission power of the remaining portion of the second frame message, following the first frame message, to be higher than that of the first frame message.

16. (Original) The data transmission method as claimed in claim 11, wherein the first frame message has a frame length of 5ms and the second frame message has a frame length of 20ms.

17. (Original) The data transmission method as claimed in claim 16, wherein a portion of the

second frame message is deleted to insert the first frame message into the deleted portion for a second duration, and the remaining portion of the second frame message is output for third and fourth durations, in said replacing step.

18. (Original) The data transmission method as claimed in claim 17, wherein a portion of the second frame message is deleted to insert the first frame message in the deleted portion for a first duration, and the remaining portion of the second frame message is output for second, third and fourth durations, in said replacing step.

19. (Original) The data transmission method as claimed in claim 17, further comprising the step of increasing the transmission power of the remaining portion of the second frame message, following the inserted first frame message.

20. (Original) The data transmission method as claimed in claim 11, wherein the second frame message generation step comprises the steps of:

generating CRC bits according to second data input of the second frame length;

generating tail bits and adding the generated tail bits to the CRC bit-added second data;

encoding the tail bit-added second frame data at a predefined coding rate; and

interleaving symbols of the encoded second frame data by the second frame length.

21. (Original) The data transmission method as claimed in claim 20, wherein symbols generated by encoding one data bit are uniformly distributed over the respective durations of the

whole frame, in said interleaving step.

22. (Original) The data transmission method as claimed in claim 21, wherein the symbols are distributed according to a delete matrix given by

$$D_1 = \begin{bmatrix} 01110111*** \\ 10111011*** \\ 11011101*** \end{bmatrix}$$

23. (Original) The data transmission method as claimed in claim 11, wherein the transmission step comprises the steps of:

spreading the frame message with an orthogonal code; and

spreading an orthogonal spread signal with a PN sequence.

24-27. (Cancelled)

28. (Original) The transmission device as claimed in claim 4, further comprising a power controller for increasing a transmission power of the remaining portion of the second frame message, following the replaced first frame message, to be higher than that of the first frame message.

29. (Original) The data transmission method as claimed in claim 14, further comprising the step of increasing a transmission power of the remaining portion of the second frame message, following the first frame message, to be higher than that of the first frame message.

30. (Original) The data transmission method as claimed in claim 18, further comprising the step of increasing the transmission power of the remaining portion of the second frame message, following the inserted first frame message.

EVIDENCE APPENDIX

There is no evidence submitted pursuant to 37 C.F.R. 1.130, 1.131, 1.132 or entered by the Examiner and relied upon by Appellants.

RELATED PROCEEDINGS APPENDIX

There are no known decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of 37 C.F.R. 41.37.